

## **AMENDMENTS TO THE CLAIMS:**

Please amend Claims 1 – 5 as follows:

1. (Currently Amended) A process for grinding a work for a non-circular rotor for grinding an outer peripheral surface of said work (10), which includes a base circle portion (50) having a constant curvature radius, and a cam lobe (51) leading to circumferential opposite ends of said base circle portion (50), by a rotary grindstone (22) advanced and retreated by an NC control depending on the profile of said work (10), while rotating said work (10) for the non-circular rotor about an axis thereof,

characterized in that the following steps are carried out: a first step of detecting a predetermined lift amount, between said base circle portion (50) and said cam lobe (51), of the outer peripheral surface of said work (10) at a given point to index a standard phase of said work (10), and a second step of advancing or retreating the rotary grindstone (22) by the NC control based on the standard phase of said work (10) indexed at said first step to grind the outer peripheral surface of said work (10).

2. (Cancelled)

3. (Currently Amended) An apparatus for grinding a work for a non-circular rotor, comprising a work-rotating means (8) for rotating the work (10), which includes a base circle portion (50) having a constant curvature radius, and a cam lobe (51) leading to circumferential opposite ends of said base circle portion (50), for the non-circular rotor about an axis thereof, while supporting said work (10), a rotary grindstone (22) capable of grinding an outer peripheral surface of said work (10), grindstone-rotating and reciprocally moving means (18, 12) capable of being advanced and retreated with respect to the outer peripheral surface of said work (10), while driving said rotary grindstone (22) in rotation, a standard phase-indexing means for indexing a standard phase of said work (10), and an NC control unit (33) for advancing and retreating said rotary grindstone (22) to grind the outer peripheral surface of said work (10) based on the standard phase of said work (10) indexed by said standard phase-

indexing means and previously input data for the profile of said work (10), characterized in that said standard phase-indexing means comprises a standard phase sensor (35) for detecting a predetermined lift amount, between said base circle portion (50) and said cam lobe (51), of the outer peripheral surface of said work (10) at a given point.

4. (Cancelled)

5. (Currently Amended) A camshaft which includes cams (10a, 10b --- 10n) each comprising a base circle portion (50) ground by the process for grinding a work for a non-circular rotor according to claim 1 ~~or~~ 2, and a cam lobe (51) leading to circumferential opposite ends of said base circle portion (50), said camshaft having no recess indicating a standard phase in an outer peripheral surface thereof.